

Contents

Foreword

G. Ho (Murdoch, Australia)	xi
----------------------------------	----

MEMBRANE TECHNOLOGY

Membranes for water production and wastewater reuse	
A.G. Fane (Sydney, Australia)	1
Membrane filtration and reverse osmosis purification of sewage: Secondary effluent for re-use at Eraring Power Station	
M. Masson and G. Deans (Waratah, Australia)	11
Design of a 1.4 mgd desalination plant based on MSF and RO processes for an arid area in India	
H.K. Sadhukhan and B.M. Misra (Bombay, India)	17
Aspects of microfiltration and reverse osmosis in municipal wastewater reuse	
S.B. Sadr Ghayeni, S.S. Madaeni, A.G. Fane and R.P. Schneider (Sydney, Australia)	25
Filter backwash water recycling using crossflow microfiltration	
S. Vigneswaran, S. Boonthanon and H. Prasanthi (Broadway, Australia)	31
Biological powdered activated carbon (BPAC) microfiltration for wastewater reclamation and reuse	
G.T. Seo (Changwon Kyungnam, Korea), Y. Suzuki (Ibaraki, Japan) and S. Ohgaki (Tokyo, Japan)	39
Ultrafiltration as a tertiary treatment: Joint research program on membranes	
V. Gadani, R. Irwin (Sydney, Australia) and V. Mandra (Le Pecq, France)	47
Drinking water treatment by using ultrafiltration hollow fiber membranes	
S. Nakatsuka, I. Nakate and T. Miyano (Himeji, Japan)	55
Night soil treatment system equipped with ultrafiltration	
T. Misaki and K. Matsui (Tokyo, Japan)	63
Study on fouling materials in the membrane treatment process for potable water	
Y. Kaiya, Y. Itoh, K. Fujita and S. Takizawa (Tokyo, Japan)	71
Humic acid as a fouling agent in filtration	
M. Nyström, K. Ruohomäki and L. Kaipia (Lappeenranta, Finland)	79
Coliphage rejection under ultramembrane filtration	
K. Kawamura (Tokyo, Japan), K. Nishimura (Miyagi, Japan) and Y. Magara (Tokyo, Japan)	89
A comparative study of RO and MSF desalination plants	
I.S. Al-Mutaz (Riyadh, Saudi Arabia)	99
Performance of membrane filtration system used for water treatment	
T. Oe, H. Koide, H. Hirokawa and K. Okukawa (Saitama, Japan)	107
Domestic wastewater reuse using a submerged membrane bioreactor	
H. Kishino, H. Ishida, H. Iwabuchi and I. Nakano (Osaka, Japan)	115
Multi-flash desalination and cogeneration to solve the water supply problems in southeastern Sicily	
E. Cardona, S. Culotta (Palermo, Italy), L. Mangiaracina and R. Terranova (Gela, Italy)	121
Vacuum desalination for water purification using waste heat	
J.H. Tay, S.C. Low and S. Jeyaseelan (Singapore)	131
Magnetic particle technology: Desalination and water reuse applications	
B.A. Bolto (Clayton, Australia)	137
A water treatment and recovery plant for highly acidic heavy metal laden effluents	
V. Cinanni, I.A. Gough and A.J. Sciuto (Geraldton, Australia)	145

WATER REUSE (Introduction by K. Mathew)

The potential for water recycling in Australia — expanding our horizons	
J.M. Anderson (Sydney, Australia)	151
Wastewater 2040 — alternative effluent disposal and reuse options for Perth and southern regions	
R. van Oorschot (Melbourne) and M. French (Leederville, Australia)	157
Recycling of treated water in Palestine: Urgency, obstacles and experience to date	
M.Y. Sbeih (West Bank, via Israel)	165
Treatment and reuse of textile wastewater by overland flow	
N. Sapari (Selangor, Malaysia)	179

Implementation of the Cracow municipal wastewater reclamation system for industrial water reuse J. Kurbiel, K. Żeglin and S.M. Rybicki (Warsaw, Poland)	183
Reclamation and reuse of process water from reactive dyeing of cotton H. Wenzel, H.H. Knudsen, G.H. Kristensen and J. Hansen (Lyngby, Denmark)	195
Water reclamation and nonpotable reuse: an option for meeting urban water supply needs D.A. Okun (Chapel Hill, USA)	205
Gel permeation: a means to characterize wastewater and residual dissolved organic matter in effluents G. Crozes (Boise, USA), B. Capdeville and A. Moro (Toulouse, France)	213
Reuse of treated wastewater — A case study in Peru B. Schoppmann (Mannheim, Germany)	225
Reclaimed water — an untapped resource J. (H.) van Leeuwen (New South Wales, Australia)	233
Recycling nutrients from municipal wastewater B.H. Boyden and A.A. Rababah (Sydney, Australia)	241
Removal of phosphorus from secondary effluent by a matrix filter M. El-Hoz and L.W. Apperley (Sydney, Australia)	247
Evaluation of toxic substances in effluents from a wastewater treatment plant Y. Ono, I. Somiya, T. Kawaguchi and S. Mohri (Kyoto, Japan)	255
Revision of the national reclaimed water guidelines J.D. Gregory (Melbourne), R. Lugg and B. Sanders (Perth, Australia)	263
Pretreatment to produce ultrapure water from reclaimed sewage K.K. Chin (Kent Ridge, Singapore)	269
Opportunities for decentralized treatment, sewer mining and effluent re-use R. Butler and T. MacCormick (Windsor, Australia)	273
A review of effluent re-use in Coffs Harbour: Desalination versus effluent re-use at Opal Cove Resort E.J. Armstrong (Lower Bucca) and R. Butler (Windsor, Australia)	285

WORKSHOPS

Technology for Localized Treatment

Localized treatment and reuse of wastewater: science, technology and management G. Ho (Murdoch, Australia)	291
Aerobic treatment units (ATUs): Appropriate technology for on-site wastewater treatment and re-use G. Ivery (Perth, Australia)	295
On-site tertiary treatment using Ecomax systems M. Bowman (West Perth, Australia)	305

Regulatory Frameworks

Domestic greywater re-use: Australia's challenge for the future B. Jeppesen (Brisbane, Australia)	311
Regulatory framework in South Australia and reclaimed water reuse options and possibilities N.M. Kayaalp (Adelaide, Australia)	317
Environmental requirements for the disposal of effluent from wastewater disposal systems G. Middle (Perth, Australia)	323
A possible regulatory framework for water recycling in Australia J.M. Anderson (Sydney, Australia)	331
Wastewater reuse — limitations and possibilities R.E. Eden (Melbourne, Australia)	335

Community Scale Systems

Principles and planning opportunities for community scale systems of water and waste management P. Newman and M. Mouritz (Perth, Australia)	339
Reuse of urban wastewaters in developing fringe areas of Metropolitan Adelaide G. McIntosh (Adelaide, Australia)	355
Wastewater disposal option in Mundaring: A practical case study E. Murphy (Leederville, Australia)	361
Greywater reuse proposal in relation to the Palmyra Project E.B. Bingley (Kalamunda, Australia)	371
Water efficiency program for Perth R. Stone (Perth, Australia)	377

An investigation into greywater reuse for urban residential properties D. Christova-Boal, R.E. Eden and S. McFarlane (Melbourne, Australia)	391
Wastewater reuse studies and trials in Canberra J. Neal (Canberra, Australia)	399

POSTERS

Conjunctive wetland treatment/aquifer storage and recovery at Regent Gardens residential development, Northfield, South Australia A.J. Emmett, S. Clarke and S. Howles (Adelaide, Australia)	407
Towards a sludgeless heavy metal finishing industry for a cleaner environment N.H.A. Hamid (Johor) and A. Idris (Selangor, Malaysia)	411
Selection of the best desalination technology for highly saline drainage water from coal mines in southern Poland J. Kurbiel, W. Balcerzak, S.M. Rybicki and K. Świst (Warsaw, Poland)	415
Total removal of heavy metal from mixed plating rinse wastewater N. Sapari, A. Idris and N.H.A. Hamid (Selangor, Malaysia)	419
Membrane fouling decrease by microfiltration with ozone scrubbing S. Takizawa, K. Fujita and K.H. Soo (Tokyo, Japan)	423
Solar desalination with a humidification-dehumidification cycle M. Farid (Perak, Malaysia) and A.W. Al-Hajaj (Basrah, Iraq)	427
Significance of potassium and chloride membrane currents in mechanisms of salt tolerance in <i>Chara corallina</i> and <i>Chara inflata</i> J.I. Kourie (Canberra, Australia)	431
Voltage and pharmacological modification of membrane currents during the action potential in <i>Chara inflata</i> J.I. Kourie (Canberra, Australia)	435
An integrated plan for town-enterprise wastewater reuse and wetland strategy: A case study Q. Zhou, L. Dai (Hangzhou, China) and R.W. Bell (Murdoch, Australia)	439
Industrial use of fresh water vis-a-vis reclaimed municipal wastewater in Madras, India C.A. Sastry (Kuala Lumpur, Malaysia) and S. Sundaramoorthy (Madras, India)	443
Author Index	449